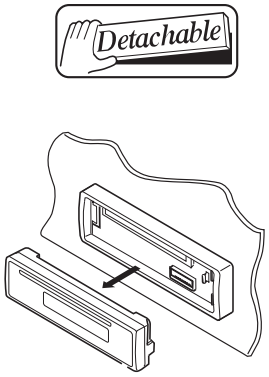
JVC

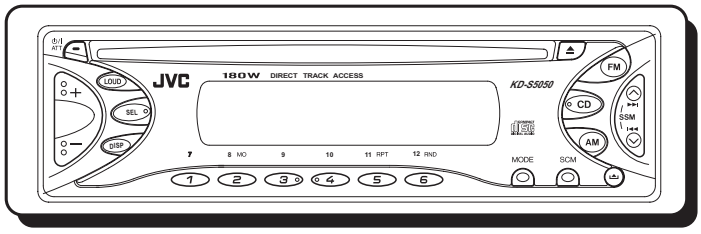
SERVICE MANUAL

CD RECEIVER

KD-S5050

Area suffix
J ---------- Northern America





COMPACT disc DIGITAL AUDIO

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No.MA026
2003/11

SPECIFICATION

AUDIO AMPLIFIER SECTION		
Maximum Power Output	Front	45 watts per channel
	Rear	45 watts per channel
Continuous Power Output (RMS)	Front	17 watts per channel into 4 Ω, 40 Hz to 20 000 Hz at no more than 0.8% total harmonic distortion.
	Rear	17 watts per channel into 4 Ω, 40 Hz to 20 000 Hz at no more than 0.8% total harmonic distortion.
Load Impedance	4 Ω (4 Ω to 8 Ω allowance)	
Tone Control Range	Bass	±10 dB at 100 Hz
	Treble	±10 dB at 10 kHz
Frequency Response	40 Hz to 20 000 Hz	
Signal-to-Noise Ratio	70 dB	
Line-Out Level/Impedance	2.0 V/20 kΩ load (full scale)	
Output Impedance	1 kΩ	
TUNER SECTION		
Frequency Range	FM	87.5 MHz to 107.9 MHz
	AM	530 kHz to 1 710 kHz
[FM Tuner]	Usable Sensitivity	11.3 dBf (1.0 μV/75 Ω)
	50 dB Quieting Sensitivity	16.3 dBf (1.8 μV/75 Ω)
	Alternate Channel Selectivity (400 kHz)	65 dB
	Frequency Response	40 Hz to 15 000 Hz
	Stereo Separation	35 dB
	Capture Ratio	1.5 dB
[AM Tuner]	Sensitivity	20 μV
	Selectivity	35 dB
CD PLAYER SECTION		
Type	Compact disc player	
Signal Detection System	Non-contact optical pickup (semiconductor laser)	
Number of channels	2 channels (stereo)	
Frequency Response	5 Hz to 20 000 Hz	
Dynamic Range	90 dB	
Signal-to-Noise Ratio	95 dB	
Wow and Flutter	Less than measurable limit	
GENERAL		
Power Requirement	Operating Voltage	DC 14.4 volts (11 volts to 16 volts allowance)
Allowable Working Temperature	0 º C to +40 º C (32 º F to 104 º F)	
Grounding System	Negative ground	
Dimensions (W × H × D)	Installation Size	182 mm × 52 mm × 150 mm (7-3/16" × 2-1/16" × 5-15/16")
	Panel Size	188 mm × 58 mm × 11 mm (7-7/16" × 2-5/16" × 7/16")
Mass	1.3 kg (2.9 lbs) (excluding accessories)	

Design and specifications are subject to change without notice.

SECTION 1
PRECAUTIONS

1.1 Safety Precautions

> ⚠ ***CAUTION*** **Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of preforming repair of this system.**

> ⚠ ***CAUTION*** **Please use enough caution not to see the beam directly or touch it in case of an adjustment or operation check.**

1.2 Preventing static electricity

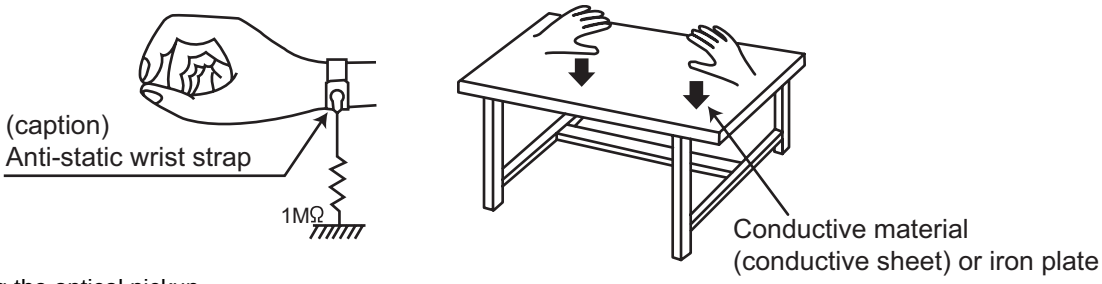
Electrostatic discharge (ESD), which occurs when static electricity stored in the body, fabric, etc. is discharged, can destroy the laser diode in the traverse unit (optical pickup). Take care to prevent this when performing repairs.

1.2.1 Grounding to prevent damage by static electricity

Static electricity in the work area can destroy the optical pickup (laser diode) in devices such as CD players.
Be careful to use proper grounding in the area where repairs are being performed.

(1) Ground the workbench
Ground the workbench by laying conductive material (such as a conductive sheet) or an iron plate over it before placing the traverse unit (optical pickup) on it.

(2) Ground yourself
Use an anti-static wrist strap to release any static electricity built up in your body.



(3) Handling the optical pickup
- In order to maintain quality during transport and before installation, both sides of the laser diode on the replacement optical pickup are shorted. After replacement, return the shorted parts to their original condition. (Refer to the text.)
- Do not use a tester to check the condition of the laser diode in the optical pickup. The tester's internal power source can easily destroy the laser diode.

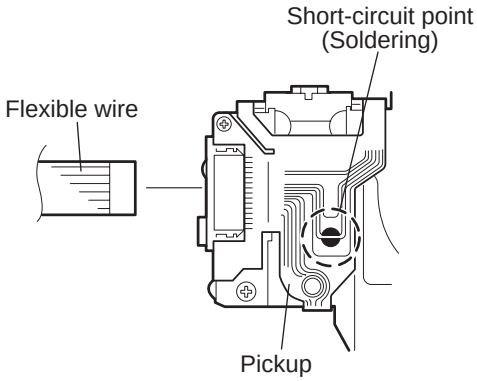
1.3 Handling the traverse unit (optical pickup)

(1) Do not subject the traverse unit (optical pickup) to strong shocks, as it is a sensitive, complex unit.
(2) Cut off the shorted part of the flexible cable using nippers, etc. after replacing the optical pickup. For specific details, refer to the replacement procedure in the text. Remove the anti-static pin when replacing the traverse unit. Be careful not to take too long a time when attaching it to the connector.
(3) Handle the flexible cable carefully as it may break when subjected to strong force.
(4) It is not possible to adjust the semi-fixed resistor that adjusts the laser power. Do not turn it.

1.4 Attention when traverse unit is decomposed

***Please refer to "Disassembly method" in the text for the CD pickup unit.**

- Apply solder to the short land before the flexible wire is disconnected from the connector on the CD pickup unit. (If the flexible wire is disconnected without applying solder, the CD pickup may be destroyed by static electricity.)
- In the assembly, be sure to remove solder from the short land after connecting the flexible wire.



SECTION 2
SPECIFIC SERVICE INSTRUCTIONS

This service manual does not describe SPECIFIC SERVICE INSTRUCTIONS.

SECTION 3
DISASSEMBLY

3.1 Main body

3.1.1 Removing the front panel assembly (See Fig.1)

(1) Push the detach button in the lower right part of the front panel assembly and remove the front panel assembly.

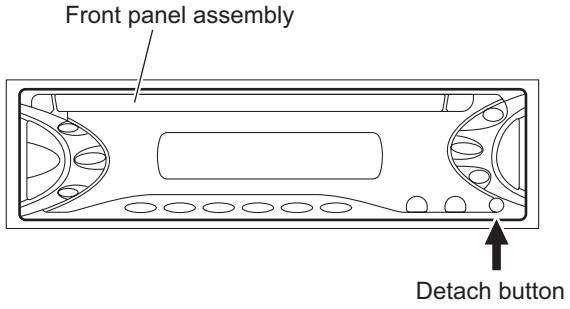


Fig.1

3.1.2 Removing the bottom cover (See Fig.2)

(1) Turn the main body up side down.
(2) Insert a screwdriver under the joints to release the two joints **a** on the left side, two joints **b** on the right side and joint **c** on the back side of the main body, then remove the bottom cover from the main body.

CAUTION:

When releasing the joints using a screwdriver, do not damage the main board.

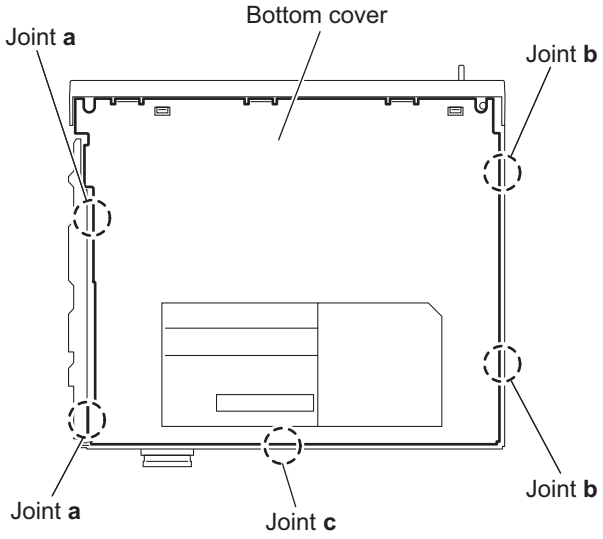


Fig.2

3.1.3 Removing the front chassis assembly (See Fig.3)

- Prior to performing the following procedures, remove the front panel assembly and bottom cover.
  (1) Remove the screw **A** on the left side of the main body.
  (2) Release the two joints **d** and two joints **e** on the both sides of the main body, then remove the front chassis assembly toward the front.

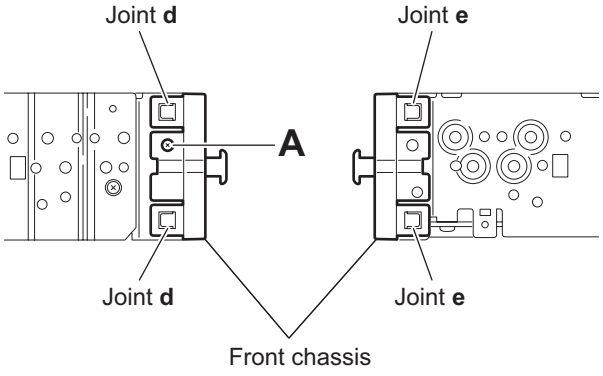


Fig.3

3.1.4 Removing the side panel
(See Fig.4)

- Prior to performing the following procedure, remove the front panel assembly as required.
  (1) Remove the screw **B** and two screws **C** attaching the heat sink on the left side of the main body, and remove the side panel.

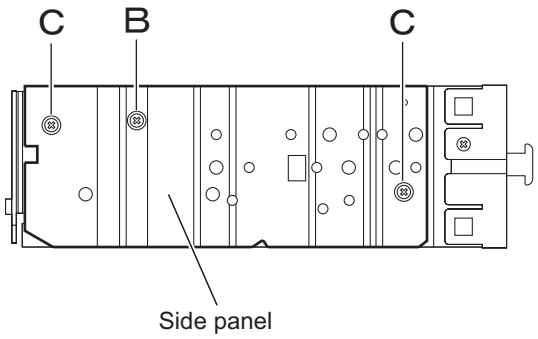


Fig.4

3.1.5 Removing the rear bracket
(See Fig.5)

- Prior to performing the following procedure, remove the bottom cover.
  (1) Remove the three screws **D**, three screws **E** and two screws **F** attaching the rear bracket on the back side of the main body.
  (2) Remove the rear bracket.

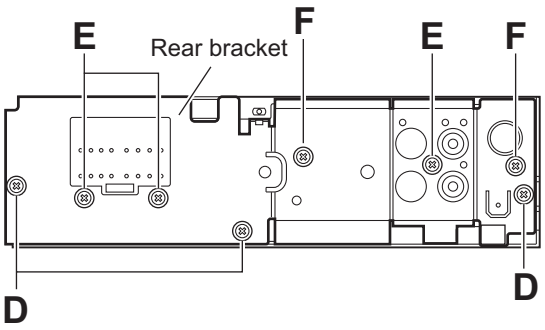


Fig.5

3.1.6 Removing the main board
(See Fig.6)

- Prior to performing the following procedure, remove the front panel assembly, front chassis assembly, side panel, bottom cover and rear bracket.
  (1) Remove the two screws **G** attaching the main board.
  (2) Disconnect the connector CN501 and remove the main board.

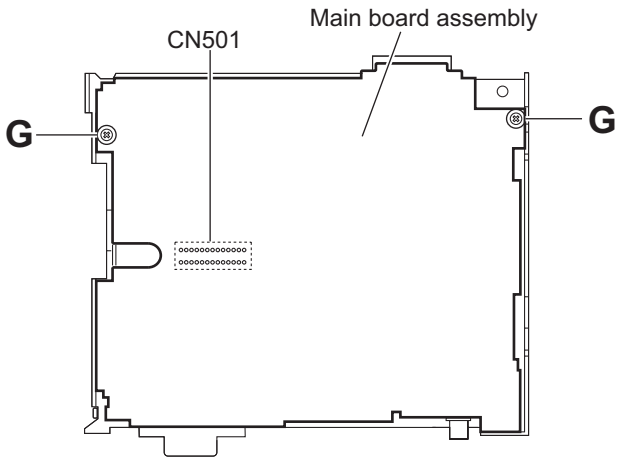


Fig.6

3.1.7 Removing the CD mechanism assembly (See Fig. 7)

- Prior to performing the following procedure, remove the front panel assembly, front chassis assembly, side panel, bottom cover, rear bracket, main board and CD mechanism board.
  (1) Remove the three screws **H** attaching the top chassis.
  (2) Take out the CD mechanism assembly.

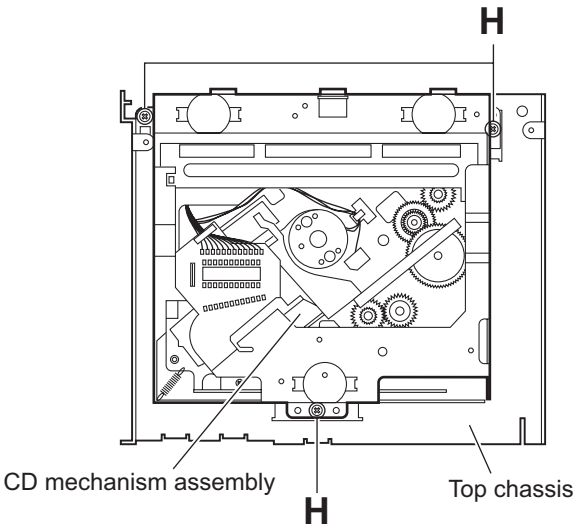


Fig.7

3.1.8 Removing the front board (See Figs.8 to 10)

- Prior to performing the following procedure, remove the front panel assembly.
  (1) Remove the four screws **J** on the back side of the front panel assembly. (See Fig.9.)
  (2) Release the eleven joints **f**. (See Fig.9.)
  (3) Release the joint **g** and take out the front board.(See Fig.10)

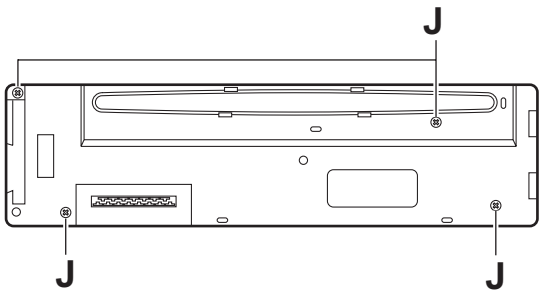


Fig.8

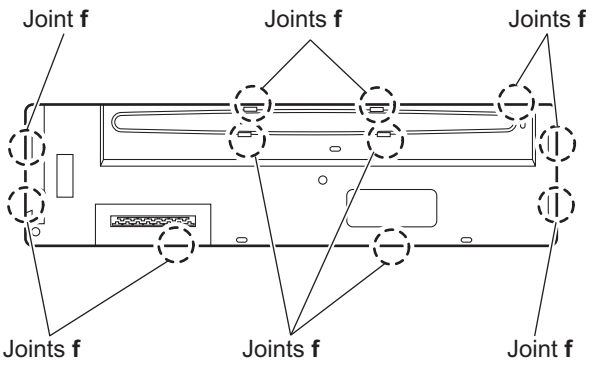


Fig.9

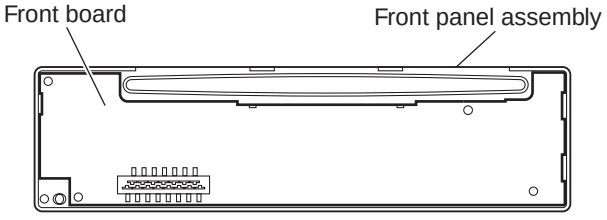


Fig.10

3.2 CD Mechanism Assembly

3.2.1 Removing the top cover (See Figs.1 and 2)

(1) Remove the two screws **A** on the both side of the body.
(2) Lift the front side of the top cover and move the top cover backward to release the two joints **a**.

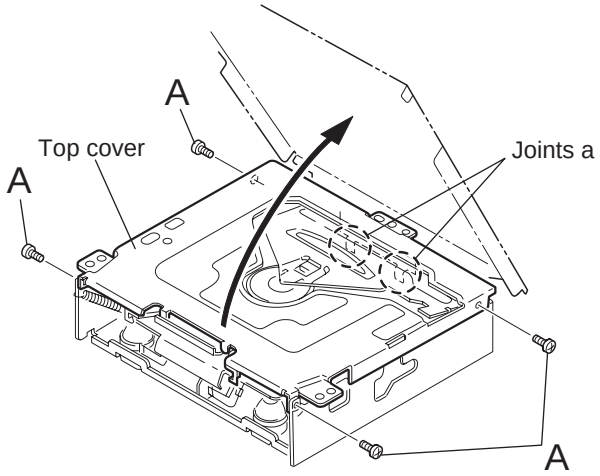


Fig.1

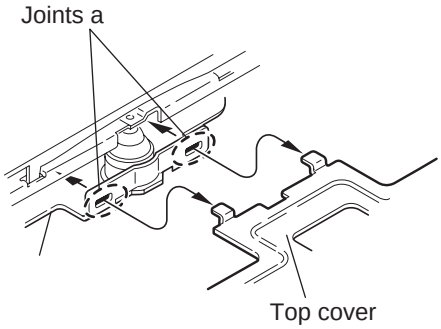


Fig.2

3.2.2 Removing the connector board (See Figs.3 to 5)

CAUTION:

Before disconnecting the flexible wire from the pickup, solder the short-circuit point on the pickup. No observance of this instruction may cause damage of the pickup.

(1) Remove the screw **B** fixing the connector board.
(2) Solder the short-circuit point on the connector board.
(3) Disconnect the flexible wire from the pickup.
(4) Move the connector board in the direction of the arrow to release the two joints **b**.
(5) Unsolder the wire on the connector board if necessary.

CAUTION:

Unsolder the short-circuit point after reassembling.

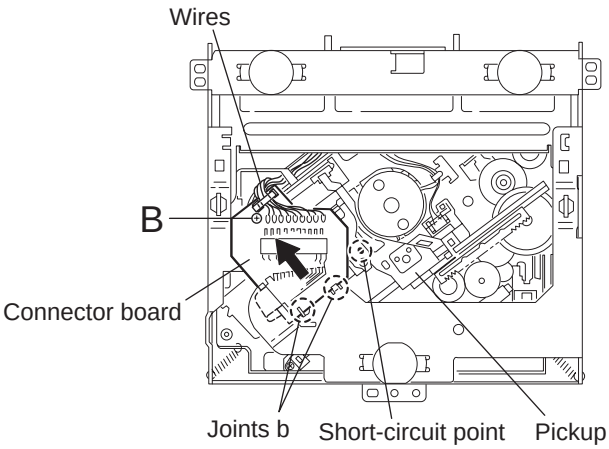


Fig.3

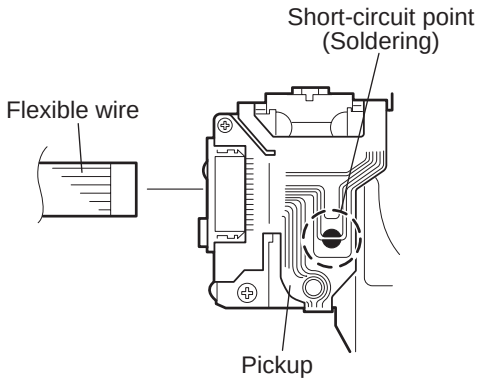


Fig.4

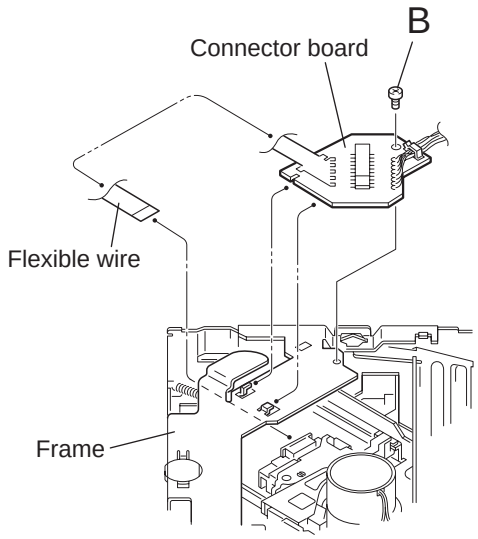


Fig.5

3.2.3 Removing the DET switch (See Figs.6 and 7)

(1) Extend the two tabs **c** of the feed sw. holder and pull out the switch.
(2) Unsolder the DET switch wire if necessary.

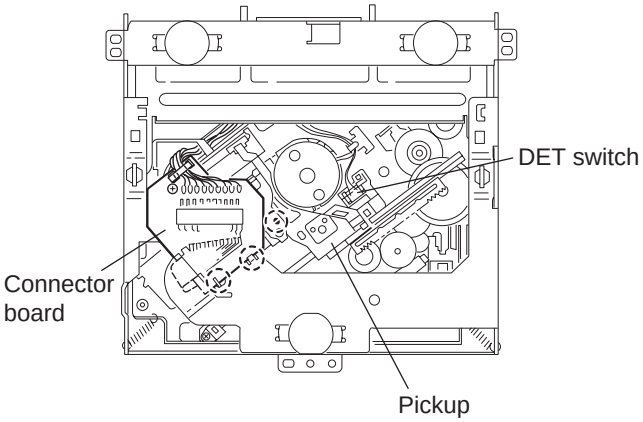


Fig.6

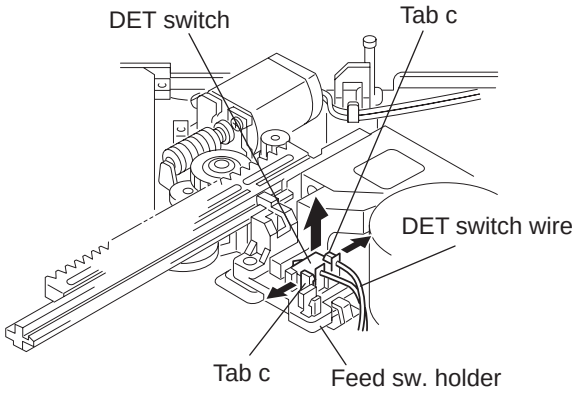


Fig.7

3.2.4 Removing the chassis unit (See Figs.8 and 9)

- Prior to performing the following procedure, remove the top cover and connector board.
  (1) Remove the two suspension springs (L) and (R) attaching the chassis unit to the frame.

CAUTION:

- The shape of the suspension spring (L) and (R) are different. Handle them with care.
- When reassembling, make sure that the three shafts on the underside of the chassis unit are inserted to the dampers certainly.

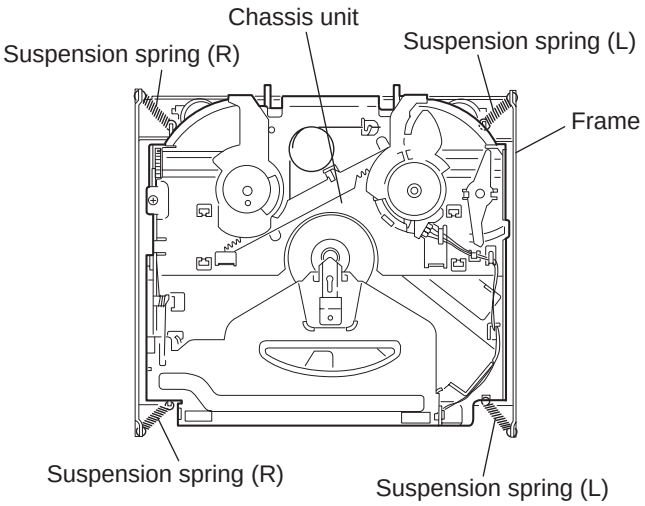


Fig.8

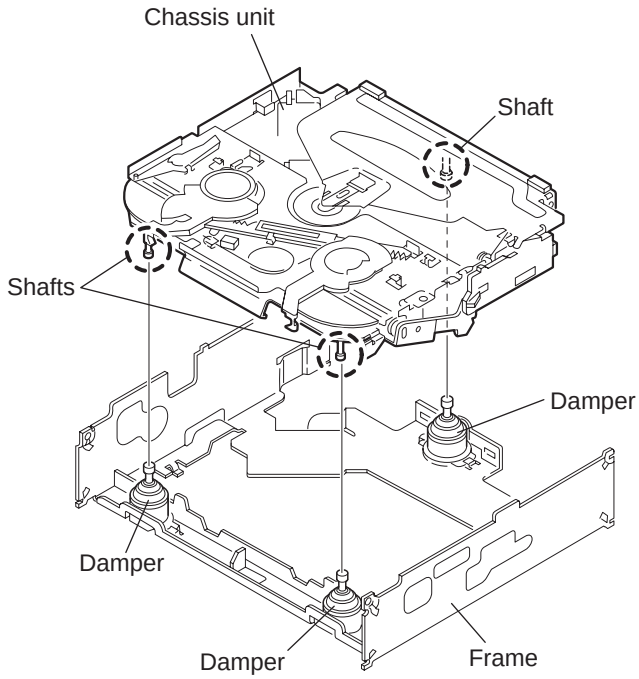


Fig.9

3.2.5 Removing the clamper assembly (See Figs.10 and 11)

- Prior to performing the following procedure, remove the top cover.
  (1) Remove the clamper arm spring.
  (2) Move the clamper assembly in the direction of the arrow to release the two joints **d**.

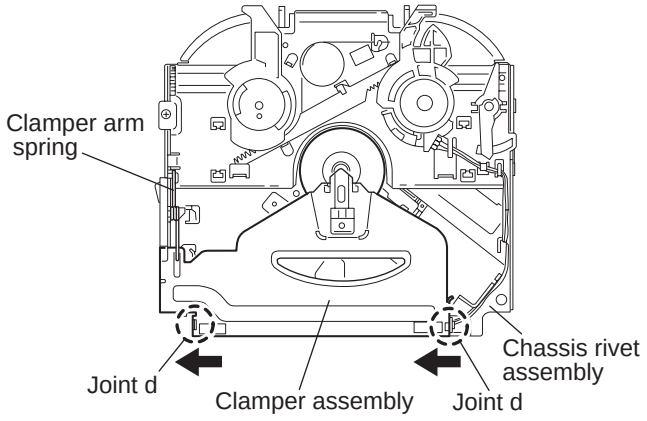


Fig.10

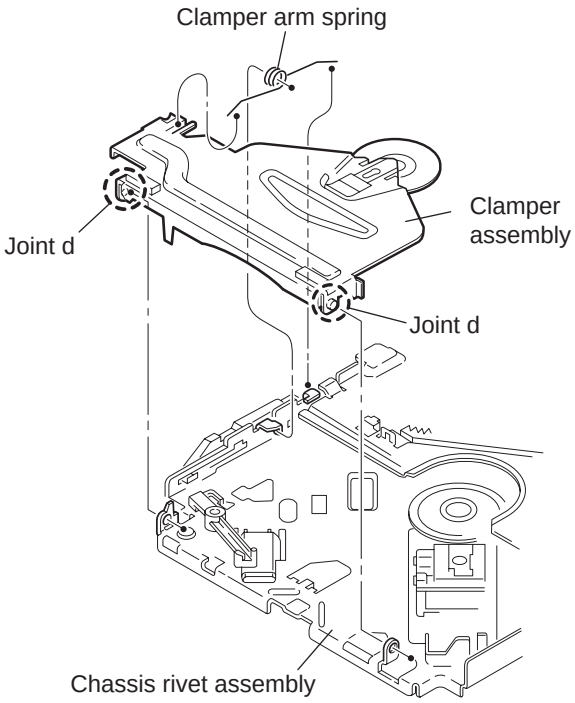


Fig.11

3.2.6 Removing the loading / feed motor assembly (See Figs.12 and 13)

- Prior to performing the following procedure, remove the top cover, connector board and chassis unit.
  (1) Remove the screw **C** and move the loading / feed motor assembly in the direction of the arrow to remove it from the chassis rivet assembly.
  (2) Disconnect the wire from the loading / feed motor assembly if necessary.

  CAUTION:
  When reassembling, connect the wire from the loading / feed motor assembly to the flame as shown in Fig.12.

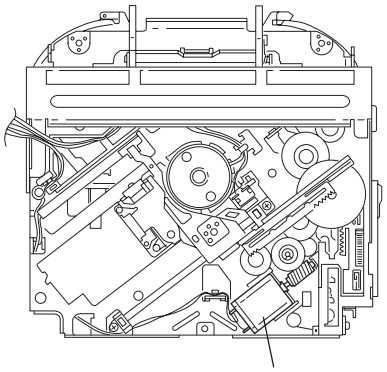


Fig.12

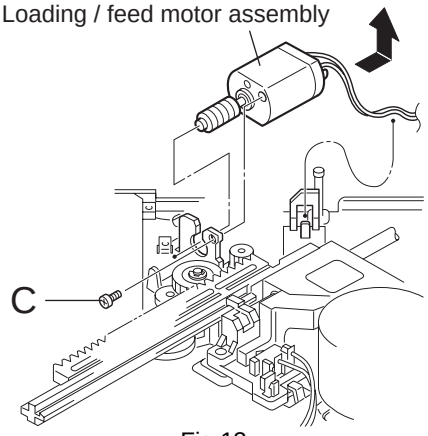


Fig.13

3.2.7 Removing the pickup unit (See Figs.14 to 18)

- Prior to performing the following procedure, remove the top cover, connector board and chassis unit.
  (1) Remove the screw **D** and pull out the pu. shaft holder from the pu. shaft.
  (2) Remove the screw **E** attaching the feed sw. holder.
  (3) Move the part **e** of the pickup unit upward with the pu. shaft and the feed sw. holder, then release the joint f of the feed sw. holder in the direction of the arrow. The joint **g** of the pickup unit and the feed rack is released, and the feed sw. holder comes off.
  (4) Remove the pu. shaft from the pickup unit.
  (5) Remove the screw **F** attaching the feed rack to the pickup unit.

3.2.8 Reattaching the pickup unit (See Figs.14 to 17)

(1) Reattach the feed rack to the pickup unit using the screw **F**.
(2) Reattach the feed sw. holder to the feed rack while setting the joint g to the slot of the feed rack and setting the part f of the feed rack to the switch of the feed sw. holder correctly.
(3) As the feed sw. holder is temporarily attached to the pickup unit, set to the gear of the joint g and to the bending part of the chassis (joint **h**) at a time.

CAUTION:

Make sure that the part i on the underside of the feed rack is certainly inserted to the slot j of the change lock lever.

(4) Reattach the feed sw. holder using the screw **E**.
(5) Reattach the pu. shaft to the pickup unit. Reattach the pu. shaft holder to the pu. shaft using the screw **D**.

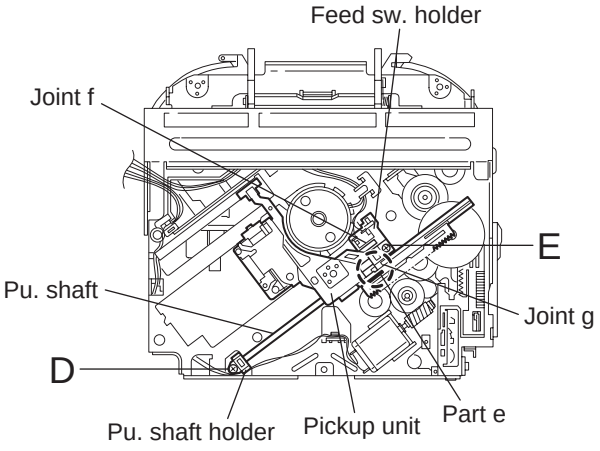


Fig.14

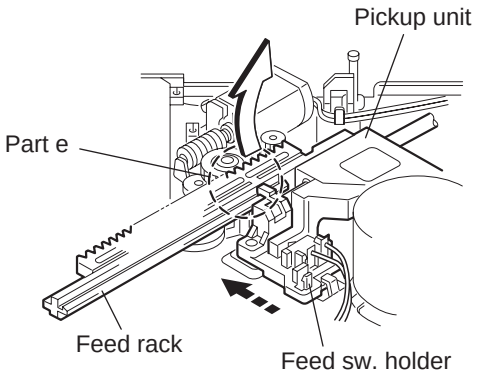


Fig.15

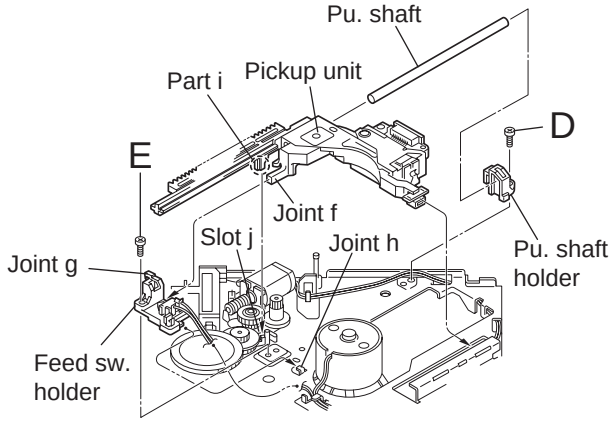


Fig.16

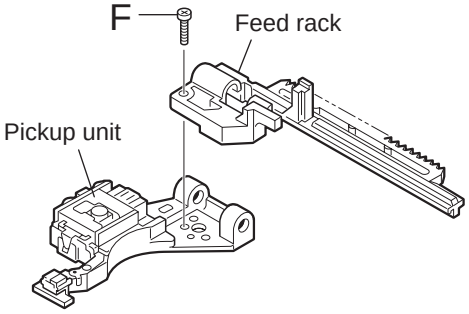


Fig.17

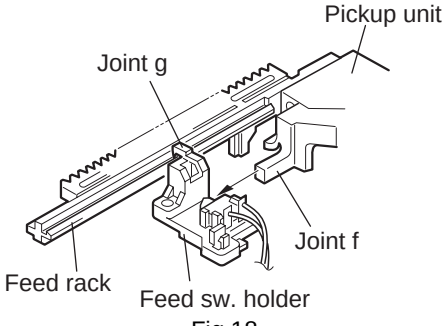


Fig.18

3.2.9 Removing the trigger arm (See Figs.19 and 20)

- Prior to performing the following procedure, remove the top cover, connector board and clamper unit.
  (1) Turn the trigger arm in the direction of the arrow to release the joint **k** and pull out upward.

CAUTION:

When reassembling, insert the part m and n of the trigger arm into the part **p** and **q** at the slot of the chassis rivet assembly respectively and join the joint k at a time.

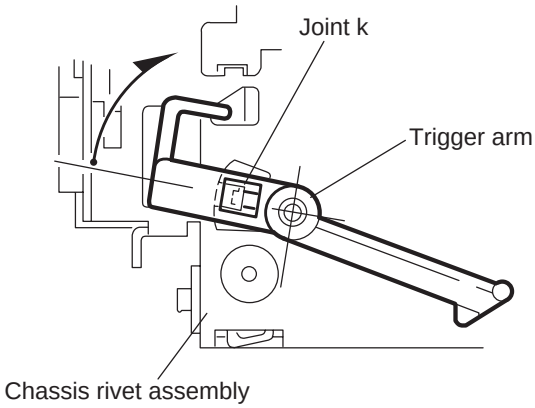


Fig.19

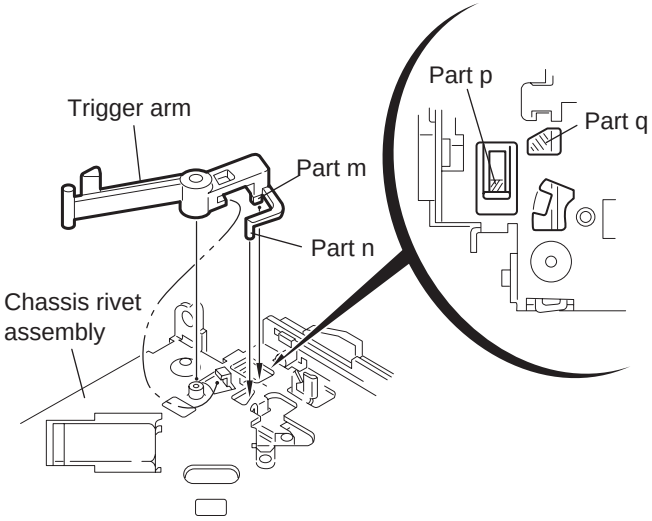


Fig.20

3.2.10 Removing the top plate assembly (See Fig.21)

- Prior to performing the following procedure, remove the top cover, connector board, chassis unit, and clamper assembly.
  (1) Remove the screw **H**.
  (2) Move the top plate assembly in the direction of the arrow to release the two joints r.
  (3) Unsolder the wire marked s if necessary.

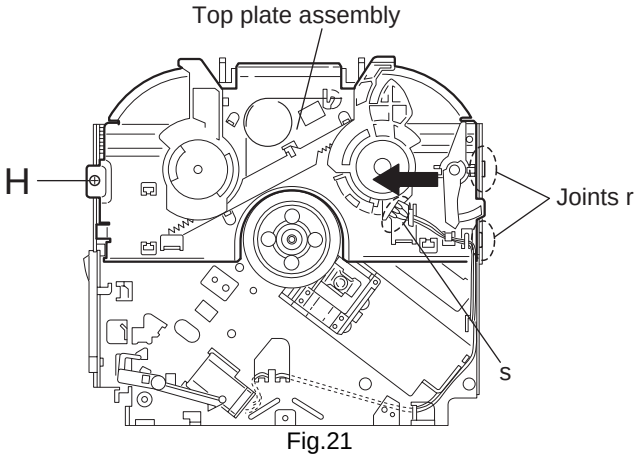


Fig.21

3.2.11 Removing the mode sw. / select lock arm (See Figs.22 and 23)

- Prior to performing the following procedure, remove the top plate assembly.
  (1) Bring up the mode sw. to release from the link plate (joint **t**) and turn in the direction of the arrow to release the joint **u**.
  (2) Unsolder the wire of the mode sw. marked s if necessary.
  (3) Turn the select lock arm in the direction of the arrow to release the two joints **v**.
  (4) The select lock arm spring comes off the select lock arm at the same time.

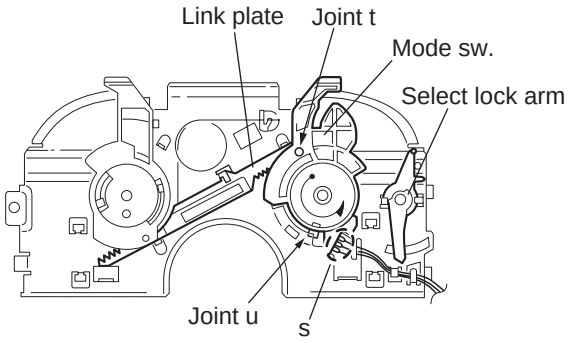


Fig.22

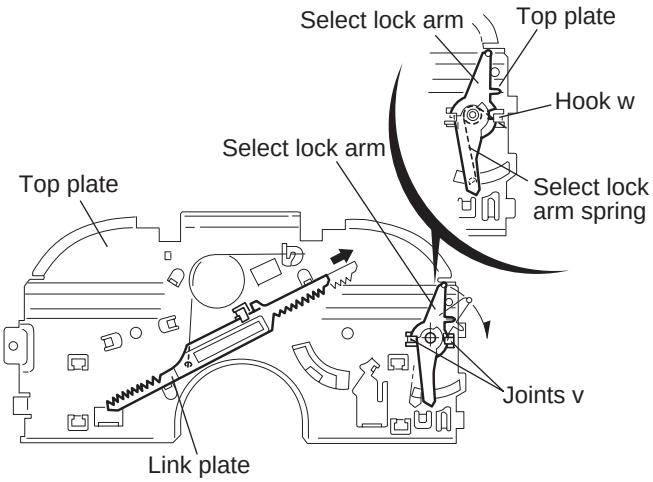


Fig.23

3.2.12 Reassembling the mode sw. / select lock arm (See Figs.24 to 26)

REFERENCE:

Reverse the above removing procedure.

(1) Reattach the select lock arm spring to the top plate and set the shorter end of the select lock arm spring to the hook w on the top plate.

(2) Set the other longer end of the select lock arm spring to the boss x on the underside of the select lock arm, and join the select lock arm to the slots (joint **v**). Turn the select lock arm as shown in the figure.

(3) Reattach the mode sw. while setting the part t to the first peak of the link plate gear, and join the joint **u**.

CAUTION:

When reattaching the mode sw., check if the points y and z are correctly fitted and if each part operates properly.

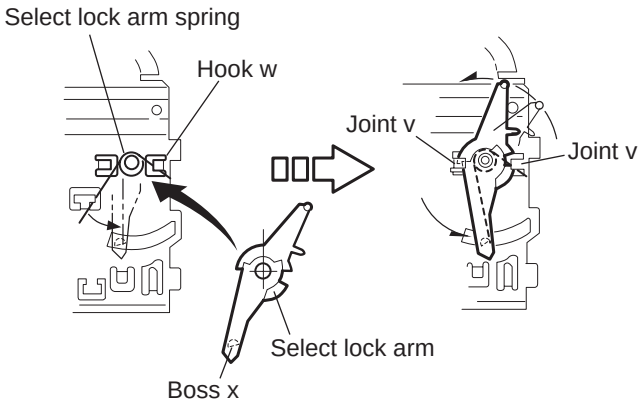


Fig.24

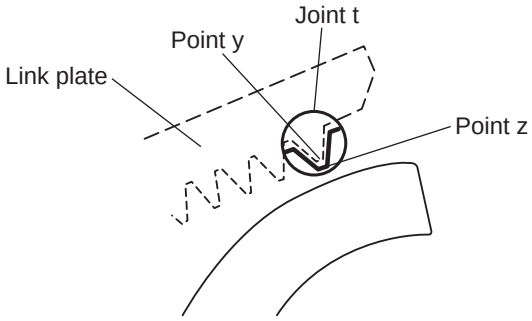


Fig.25

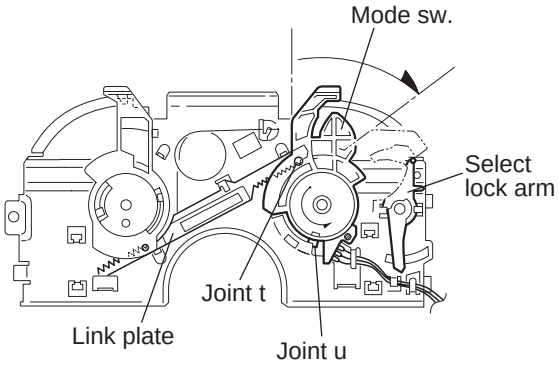


Fig.26

3.2.13 Removing the select arm R / link plate (See Figs.27 and 28)

- Prior to performing the following procedure, remove the top plate assembly.
  (1) Bring up the select arm R to release from the link plate (joint a') and turn as shown in the figure to release the two joints **b'** and joint **c'**.
  (2) Move the link plate in the direction of the arrow to release the joint d'. Remove the link plate spring at the same time.

REFERENCE:

Before removing the link plate, remove the mode sw..

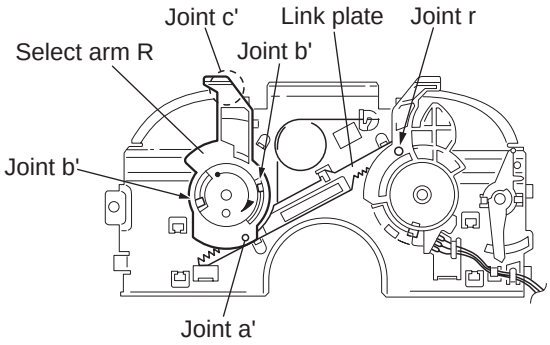


Fig.27

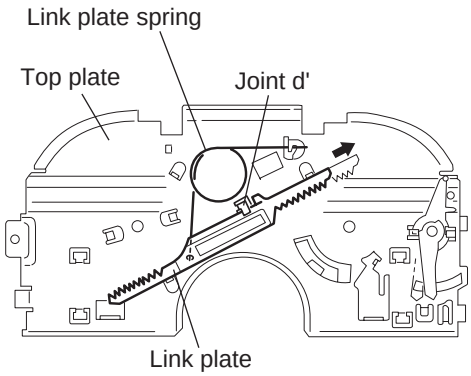


Fig.28

3.2.14 Reattaching the Select arm R / link plate (See Figs.29 and 30)

REFERENCE:

Reverse the above removing procedure.

(1) Reattach the link plate spring.
(2) Reattach the link plate to the link plate spring while joining them at joint **d'**.
(3) Reattach the joint a' of the select arm **R** to the first peak of the link plate while joining the two joints **b'** with the slots. Then turn the select arm R as shown in the figure. The top plate is joined to the joint **c'**.

CAUTION:

When reattaching the select arm **R**, check if the points **e'** and **f'** are correctly fitted and if each part operates properly.

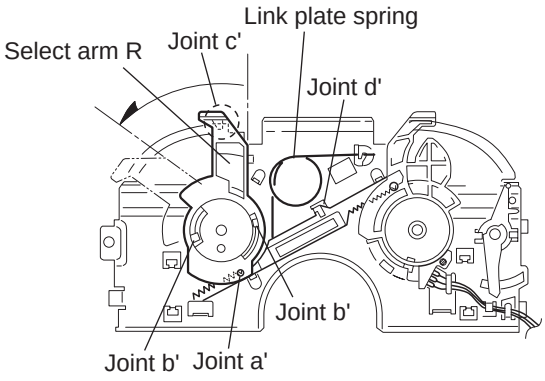


Fig.29

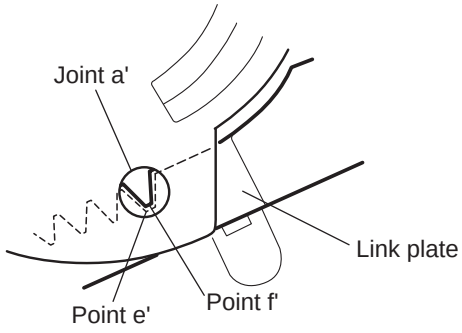


Fig.30

3.2.15 Removing the loading roller assembly (See Figs.31 to 33)

- Prior to performing the following procedure, remove the clamper assembly and top plate assembly.

(1) Push inward the loading roller assembly on the gear side and detach it upward from the slot of the joint **g'** of the lock arm rivet assembly.

(2) Detach the loading roller assembly from the slot of the joint **h'** of the lock arm rivet assembly.

The roller guide comes off the gear section of the loading roller assembly.

Remove the roller guide and the HL washer from the shaft of the loading roller assembly.

(3) Remove the screw **J** attaching the lock arm rivet assembly.

(4) Push the shaft at the joint **i'** of the lock arm rivet assembly inward to release the lock arm rivet assembly from the slot of the **L** side plate.

(5) Extend the lock arm rivet assembly outward and release the joint **j'** from the boss of the chassis rivet assembly. The roller guide springs on both sides come off at the same time.

CAUTION:

When reassembling, reattach the left and right roller guide springs to the lock arm rivet assembly before reattaching the lock arm rivet assembly to the chassis rivet assembly. Make sure to fit the part **k'** of the roller guide spring inside of the roller guide. (Refer to Fig.34.)

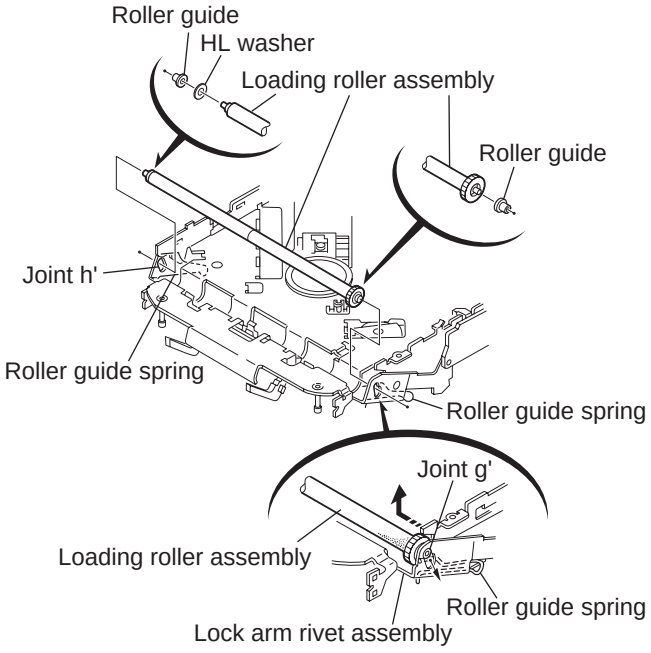


Fig.31

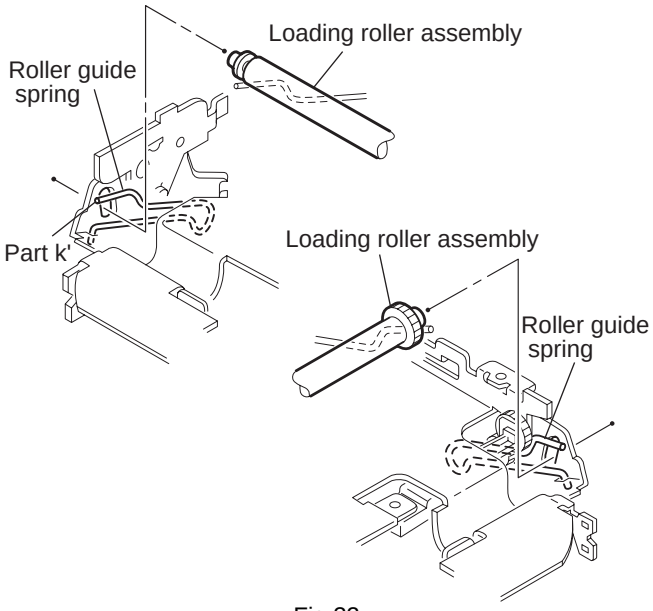


Fig.32

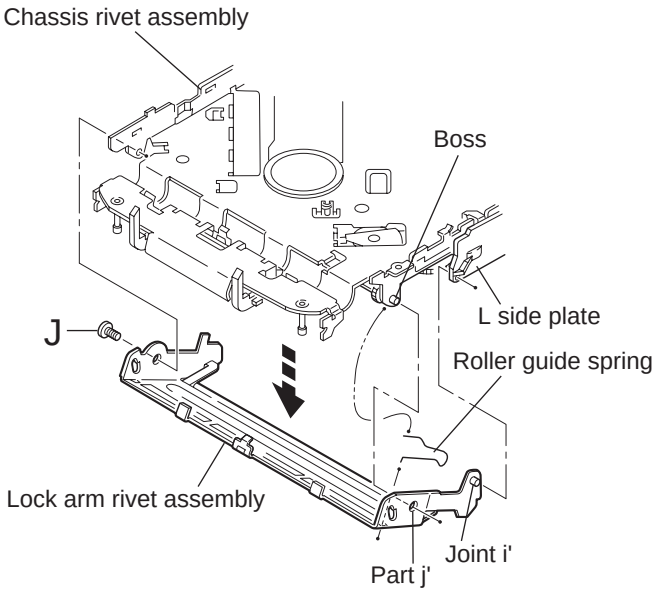


Fig.33

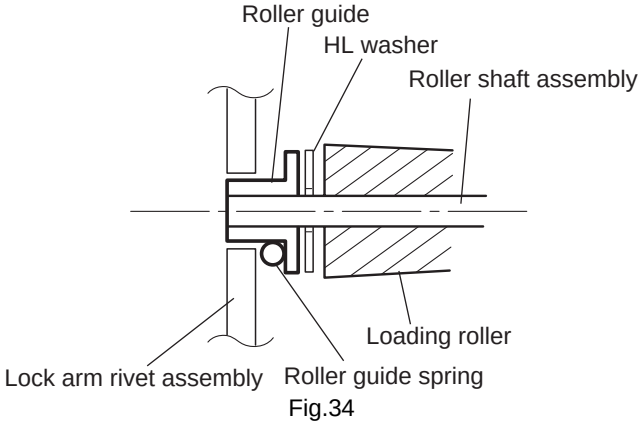


Fig.34

3.2.16 Removing the loading gear 5, 6 and 7 (See Figs.35 and 36)

- Prior to performing the following procedure, remove the top cover, chassis unit, pickup unit and top plate assembly.
  (1) Remove the screw **K** attaching the loading gear bracket. The loading gear 6 and 7 come off the loading gear bracket.
  (2) Pull out the loading gear 5.

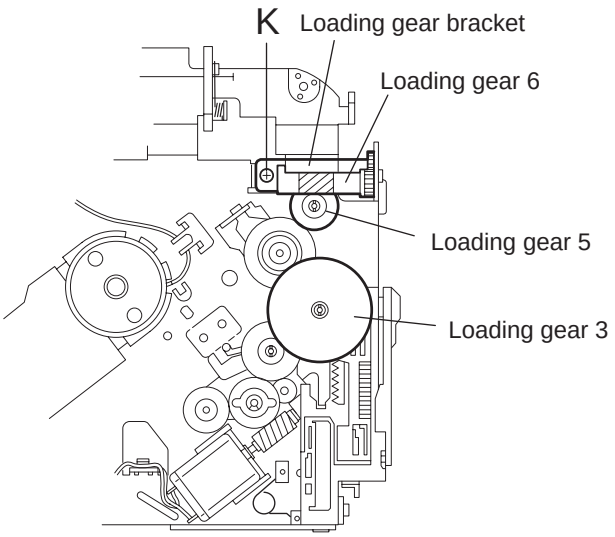


Fig.35

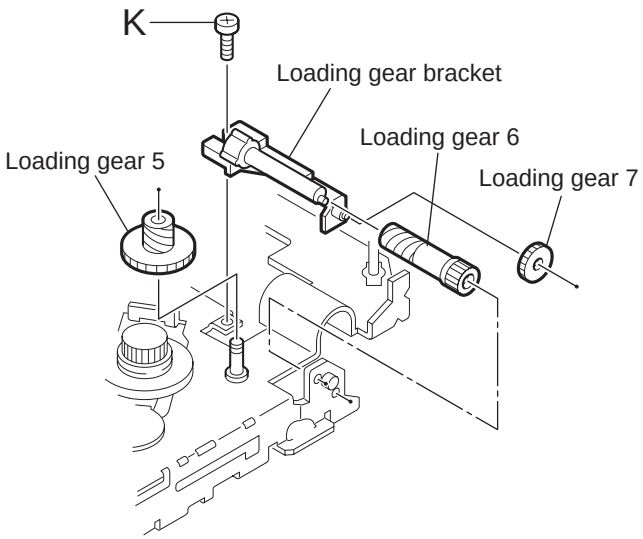


Fig.36

3.2.17 Removing the gears
(See Figs.37 to 40)

- Prior to performing the following procedure, remove the top cover, chassis unit, top plate assembly and pickup unit.
- Pull out the loading gear 3. (See Fig.35.)

(1) Pull out the feed gear.
(2) Move the loading plate assembly in the direction of the arrow to release the L side plate from the two slots m' of the chassis rivet assembly. (See Fig.37.)
(3) Detach the loading plate assembly upward from the chassis rivet assembly while releasing the joint **n'**. Remove the slide hook and loading plate spring from the loading plate assembly.
(4) Pull out the loading gear 2 and remove the change lock lever.
(5) Remove the E ring and washer attaching the changer gear 2.
(6) The changer gear 2, change gear spring and adjusting washer come off.
(7) Remove the loading gear 1.
(8) Move the change plate rivet assembly in the direction of the arrow to release from the three shafts of the chassis rivet assembly upward. (See Fig.38.)
(9) Detach the loading gear plate rivet assembly from the shaft of the chassis rivet assembly upward while releasing the joint p'. (See Figs.38 and 40.)
(10) Pull out the loading gear 4.

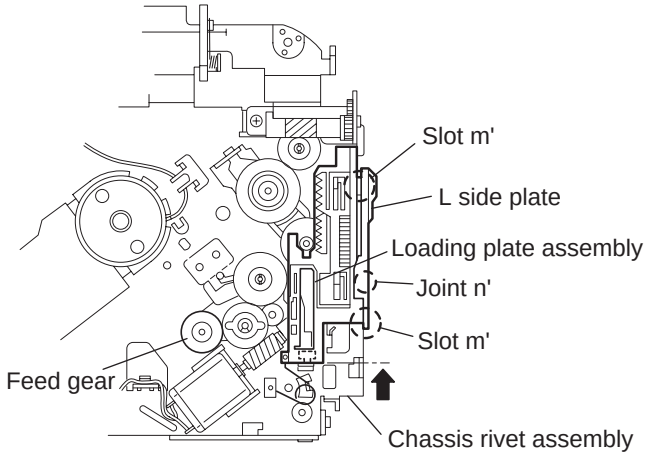


Fig.37

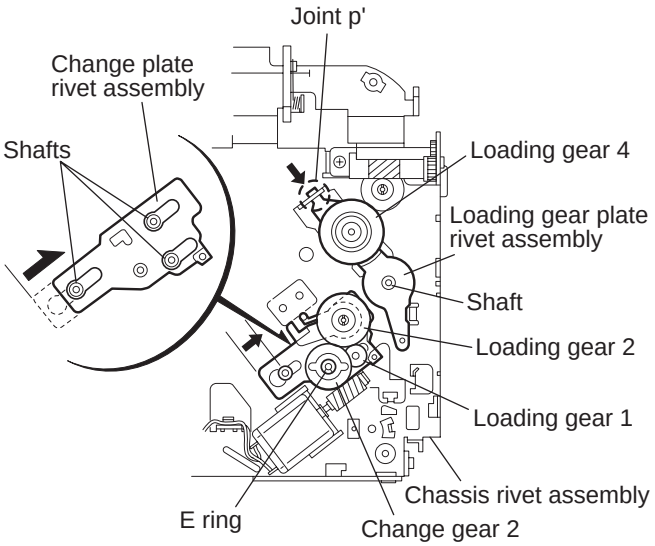


Fig.38

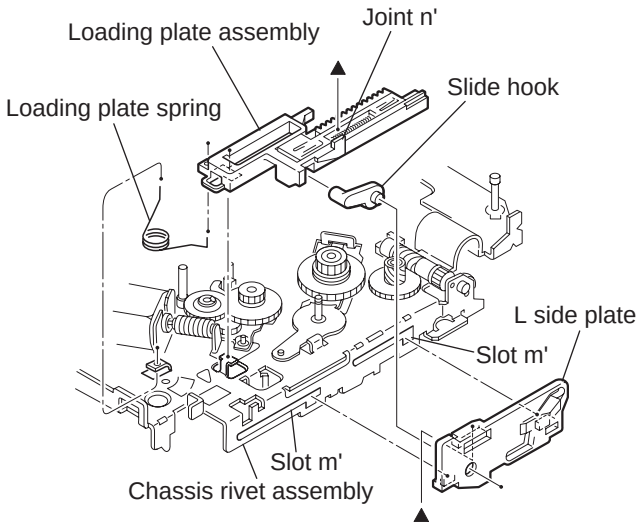


Fig.39

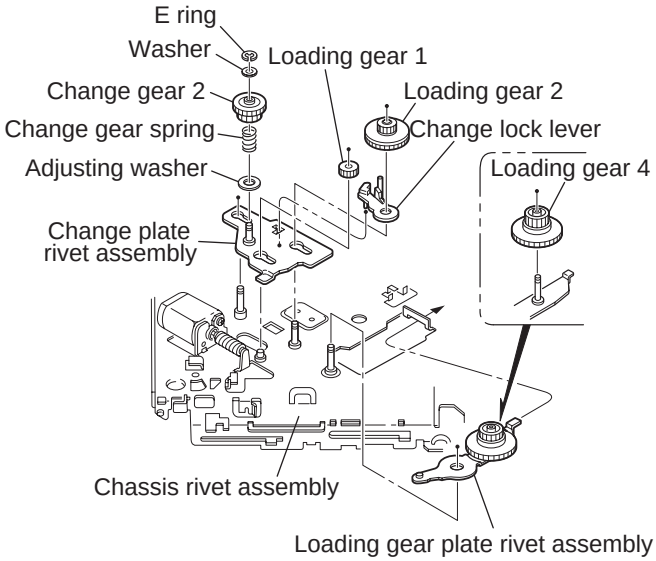


Fig.40

3.2.18 Removing the turn table / spindle motor (See Figs.41 and 42)

- Prior to performing the following procedure, remove the top cover, connector board, chassis unit and clamper assembly.
  (1) Remove the two screws **L** attaching the spindle motor assembly through the slot of the turn table on top of the body.
  (2) Unsolder the wire on the connector board if necessary.

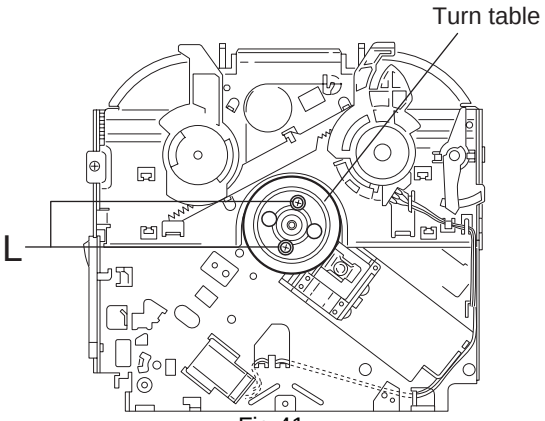


Fig.41

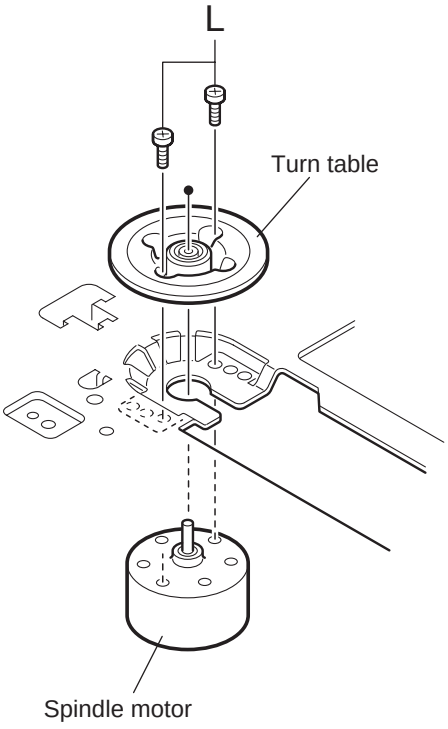


Fig.42

SECTION 4
ADJUSTMENT

4.1 Adjustment method

■ **Test instruments required for adjustment**

(1) Digital oscilloscope (100MHz)
(2) AM Standard signal generator
(3) FM Standard signal generator
(4) Stereo modulator
(5) Electric voltmeter
(6) Digital tester
(7) Tracking offset meter
(8) Test Disc JVC :CTS-1000
(9) Extension cable for check
EXTSH002-22P × 1

■ **Standard volume position**

Balance and Bass &Treble volume : Indication"0"
Loudness : OFF

■ **How to connect the extension cable for adjusting**

Caution:

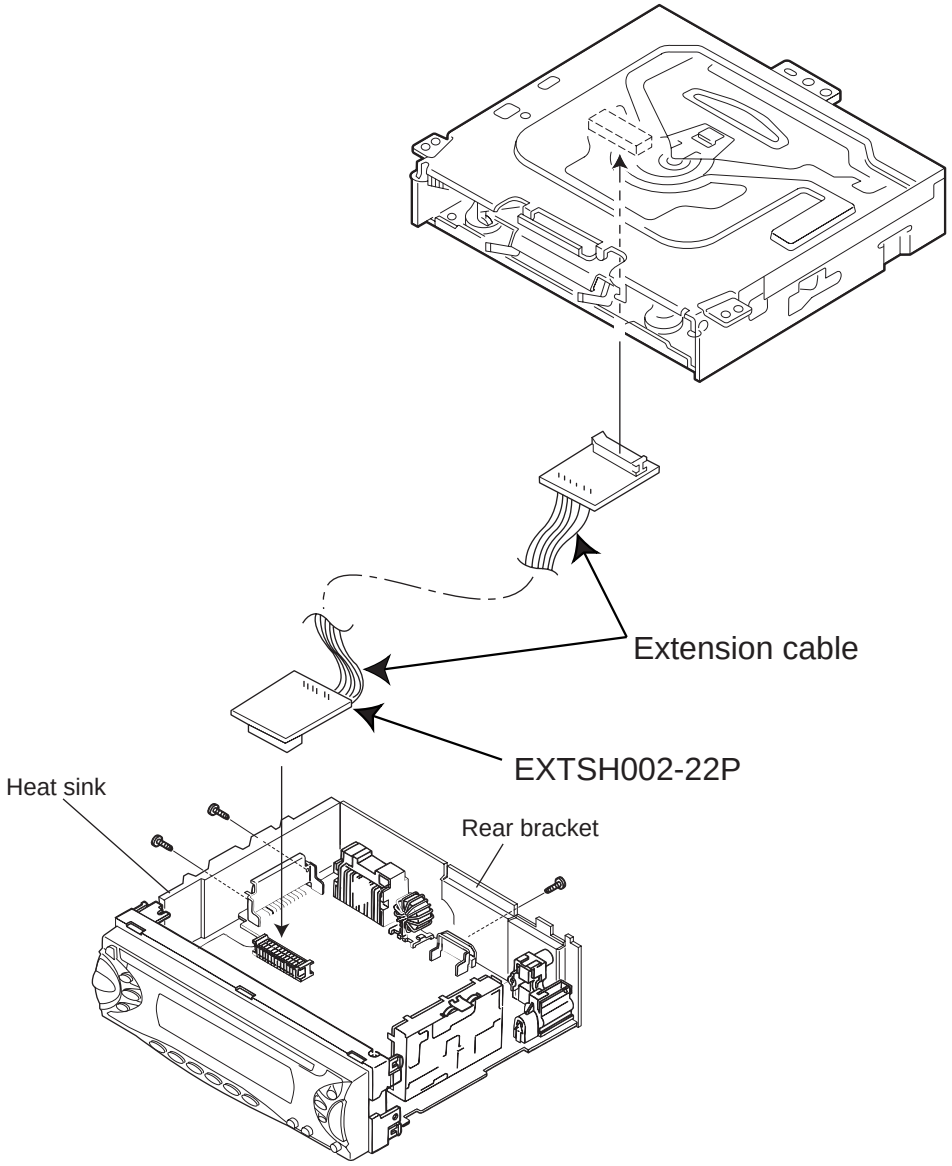
Be sure to attach the heat sink and rear bracket onto the power amplifier IC and regulator IC respectively, before supply the power. If voltage is applied without attaching these parts, the power amplifier IC and regulator IC will be destroyed by heat.

■ **Standard measuring conditions**

Power supply voltage	DC14.4V(10.5 to 16V)
Load impedance	20KΩ(2 Speakers connection)
Output Level	Line out 2.0V (Vol. MAX)

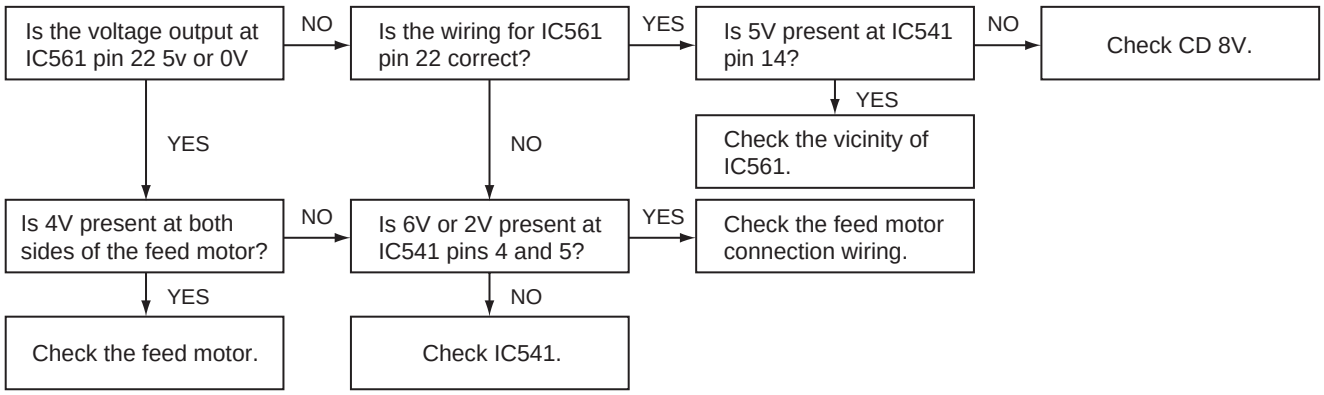
■ **Dummy load**

Exclusive dummy load should be used for AM,and FM. For FM dummy load,there is a loss of 6dB between SSG output and antenna input.The loss of 6dB need not be considered since direct reading of figures are applied in this working standard.

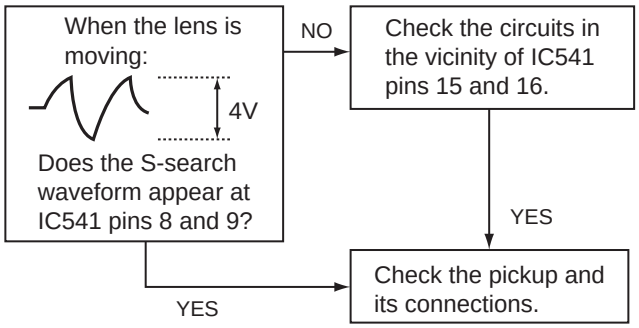


SECTION 5
TROUBLESHOOTING

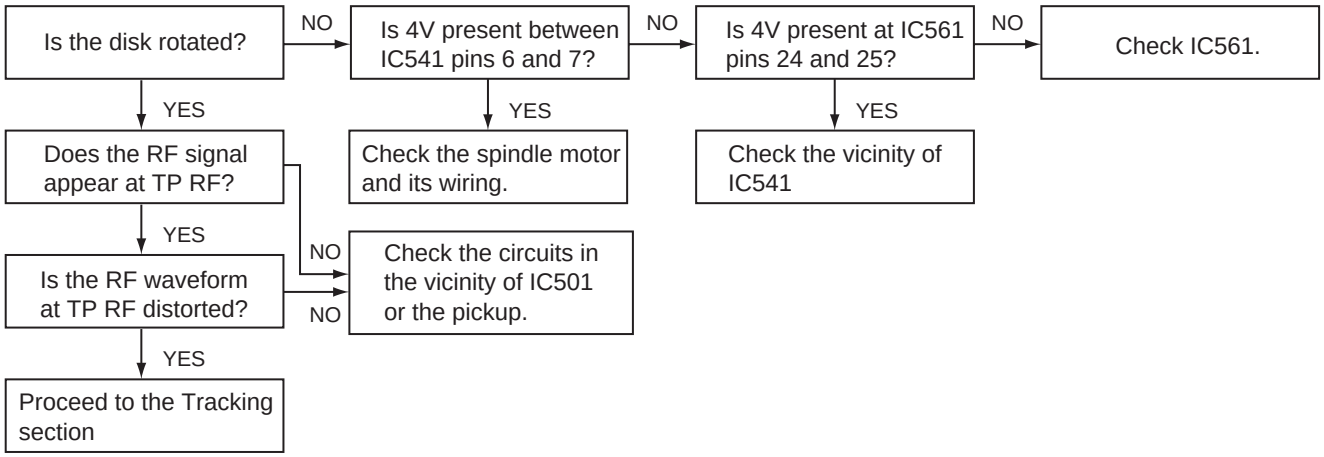
5.1 Feed section



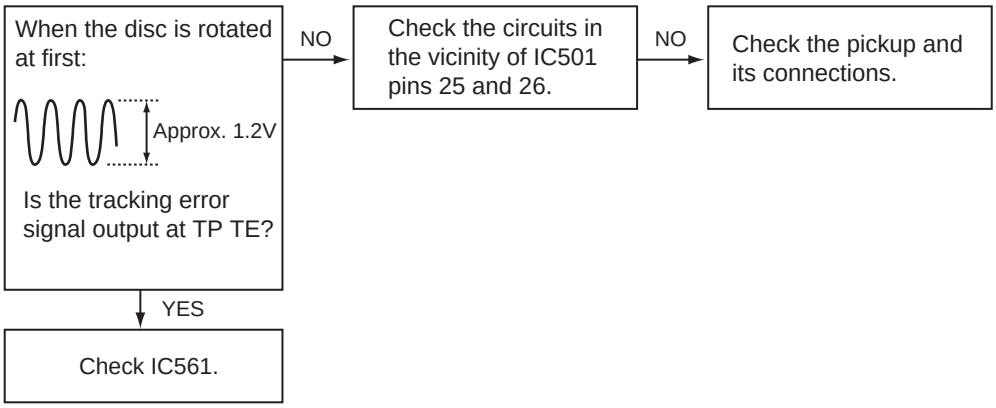
5.2 Focus section


When the lens is moving:
4V
Does the S-search waveform appear at IC541 pins 8 and 9?
NO
Check the circuits in the vicinity of IC541 pins 15 and 16.
YES
Check the pickup and its connections.
YES

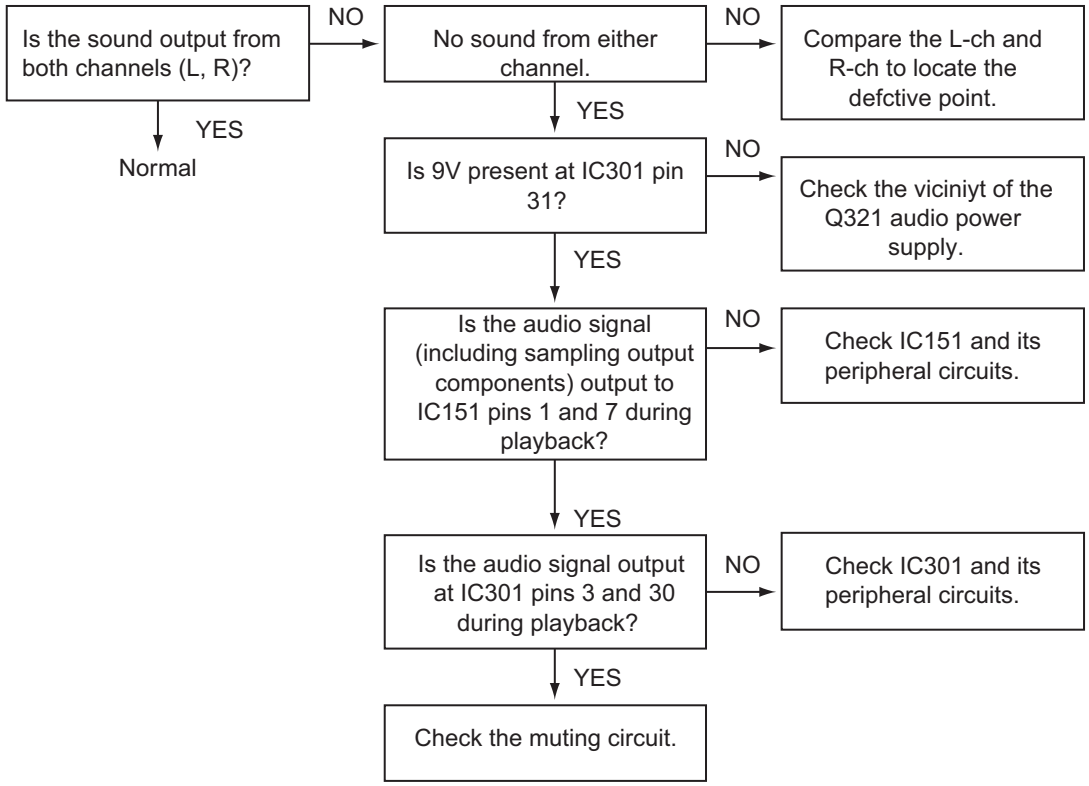
5.3 Spindle section



5.4 Tracking section


When the disc is rotated at first:
Approx. 1.2V
Is the tracking error signal output at TP TE?
NO
Check the circuits in the vicinity of IC501 pins 25 and 26.
NO
Check the pickup and its connections.
YES
Check IC561.

5.5 Signal processing section

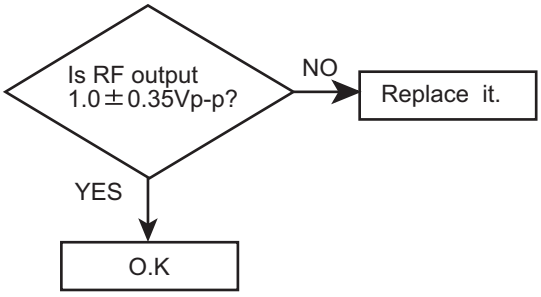

Is the sound output from both channels (L, R)?
NO
No sound from either channel.
NO
Compare the L-ch and R-ch to locate the defctive point.
YES
Normal
YES
Is 9V present at IC301 pin 31?
NO
Check the viciniyt of the Q321 audio power supply.
YES
Is the audio signal (including sampling output components) output to IC151 pins 1 and 7 during playback?
NO
Check IC151 and its peripheral circuits.
YES
Is the audio signal output at IC301 pins 3 and 30 during playback?
NO
Check IC301 and its peripheral circuits.
YES
Check the muting circuit.

5.6 Maintenance of laser pickup

(1) Cleaning the pick up lens
Before you replace the pick up, please try to clean the lens with a alcohol soaked cotton swab.

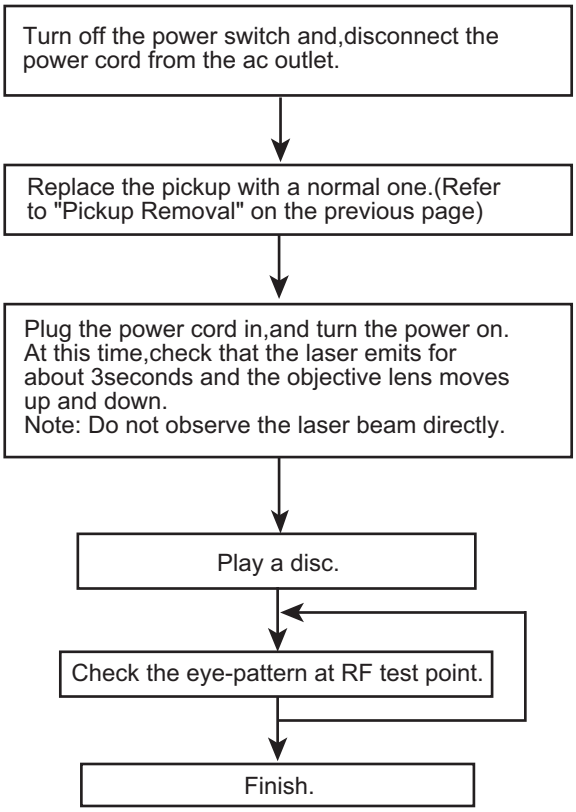
(2) Life of the laser diode
When the life of the laser diode has expired, the following symptoms will appear.

- The level of RF output (EFM output: amplitude of eye pattern) will be low.

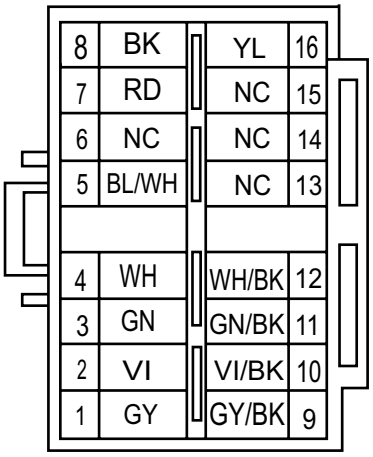


(3) Semi-fixed resistor on the APC PC board
The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power.Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.
If the laser power is lower than the specified value, the laser diode is almost worn out, and the laser pickup should be replaced. If the semi-fixed resistor is adjusted while the pickup is functioning normally, the laser pickup may be damaged due to excessive current.

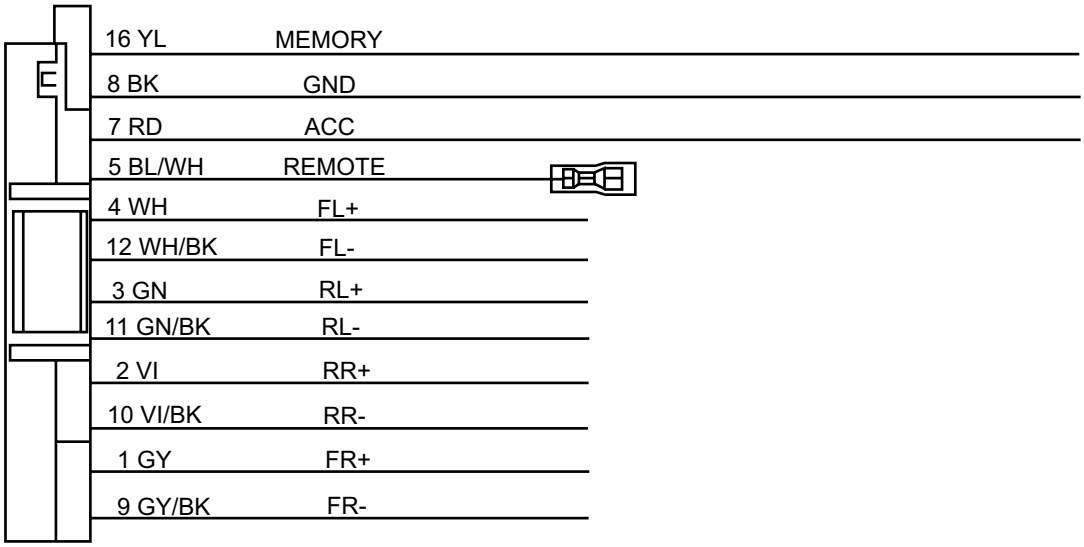
5.7 Replacement of laser pickup


Turn off the power switch and,disconnect the power cord from the ac outlet.
Replace the pickup with a normal one.(Refer to "Pickup Removal" on the previous page)
Plug the power cord in,and turn the power on.
At this time,check that the laser emits for about 3seconds and the objective lens moves up and down.
Note: Do not observe the laser beam directly.
Play a disc.
Check the eye-pattern at RF test point.
Finish.

5.8 16pin cord diagram



BK	Black	GN	Green
RD	Red	VI	Violet
BL	Blue	GY	Gray
WH	White	YL	Yellow



RR	Rear Right	REMOTE	Remote
FR	Front Right	ACC	ACC Line
FL	Front Left	MEMORY	Memory Backup Battery
RL	Rear Left	GND	Ground

JVC
VICTOR COMPANY OF JAPAN, LIMITED
AV & MULTIMEDIA COMPANY MOBILE ENTERTAINMENT CATEGORY 10-1,1chome,Ohwatari-machi,Maebashi-city,371-8543,Japan

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